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NOTES ON OUR LOCAL PLANTS.

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The purpose of these notes is principally to serve as a record of the vascular plants that grow spontaneously or without cultivation in the extreme parts of Northwestern Indiana and Southwestern Michigan. With the exception of Lake and Laporte counties in the former, very few reports have been made in this region of our indigenous and introduced plants, and so in perhaps most instances these records are made for the first time. Though one may have a fairly correct idea of the plants that are to be expected to grow here, as given in our larger floras of the whole country or major parts thereof, so many changes have taken place in our local flora within the last decade or two, and are even now taking place that we can never be sure which plants have become extinct, or have always been locally absent, by reference to such works as Gray's or Britton's Manuals. In other cases plants even positively excluded from our area have been found, and some hardly to be expected are as a matter of fact quite abundant. In any case the only reliable list of plants is that prepared as the result of long and extensive trips throughout a more or less limited area. Even then unless the botanizing is done year after year regularly in the same places, certain plants that seem to appear and disappear periodically are likely to be overlooked, as I have had ample occasion to experience. This list, if so it may be called, is the result of more or less irregular investigation begun about 1896. In a number of instances records of plants present in the University herbarium antedate that year. I refer to a collection of plants made by Dr. Francis Powers who was instructor in botany at the University, and now is pro-

* October 12, 1912. Pages 267 to 306.

fessor of Anatomy. Probably the principal reason why no record of plants was made sooner of our locality is that the large collection of our local plants made by the Rev. J. Carriere, together with a large herbarium of European plants and other exchanges, and practically the whole biological museum of the University was destroyed by fire in 1879. About this time he became professor of botany at the College of St. Laurent near Montreal, Canada, and not very many specimens of local flora were added to the herbarium since his departure until rather recently.

We have preferred the title prefixed rather than the stereotyped "List" or "Flora" of S. W. Michigan and N. W. Indiana, because notes and observations as we have decided to include, would seem foreign to a mere list. In the matter of nomenclature, too, there may be what some will consider unwarranted peculiarities. Nomenclature under the systems of present expediency is largely a matter of opinion of a person, or aggregate of individuals many or perhaps most of which in the congresses which formulated these systems were expected to contribute a maximum of assent and vote, and a minimum of reason. In fact the votes that decided 1753 as the beginning of our botanical nomenclature were in some instances given and accepted from botanists in conclave so inadequate of scientific decision that some then had never even seen the inside of the Linnaean Species Plantarum of 1753! Being a matter largely of opinion no system of expediency that we have yet met with is even self-professedly or practically logical. No code more or less widely adopted with reservations by countries and sections and factions, merits even the encomium of honestly attempting to be consistent, no matter how many have given their support, and our systems of today are for the most part agreements more or less illogically formulated and assented to by a clique or clan for temporary expediency.

No code of nomenclature can be logical that presumes to begin with an artificial "starting point," because it presumes dogmatically to rule when science began. Any code that accepts impossible or stupid names because they enjoy priority alone does not, on the other hand, deserve the approbation of the scientist, nor certainly will win the approval of coming ages when we shall be judged logically on our real merits. Indisputably proved absolute historical priority alone as a principle deserves the consent of a reasoning mind. This is now admitted by our best botanists,

but few have the courage or some perhaps not the knowledge to dare follow this principle to its logical conclusion. The strongest objection to historical priority in plant names comes from the type of superficially educated botanists of our day, unacquainted with the Greek and Latin classics, unable without assistance in many cases to make up for their newly discovered genera or species names often that are either grammatical or correct. The difficulties standing in the way of the right system are none other than prejudice and ignorance, or better the prejudice of the ignorant, for none but the truly shallow have prejudices. These really do not deserve much consideration from the scientist whose end is the truth, the whole truth, and nothing but the truth, and is unhampered by motives of expediency in the face of eternal principles of reason.

If then in spite of the fact that due to newness of the field and vast erudition required to work it over satisfactorily, we are liable in trying to follow the principle of historical priority in the accompanying notes, to make many a mistake perhaps, we ask the indulgence of the reader in matters so difficult. In any case we shall have the consciousness at the start that we begin from a logical point of view, and we have therefore the hope that such mistakes will be entirely errors of interpretation. Regarding priority, we may not succeed in all cases to obtain the older or correct name, but we feel that we are placing no obstacle deliberately in our own way towards obtaining such, by application of a contradictory principle. Of blunders there will be not a few, but we shall do less injustice to the pre-Linnaean authors by giving the majority of them at least the credit denied them by our modern methods.

There will be those that will ridicule the idea of applying to our plants names used by Vergil, Theophrastus, Pliny, Dioscorides, Brunfels, Valerius Cordus, Dodonaeus, Camerarius etc., In most instances the names we use at present under our "expediency" codes are theirs anyway, and we might as well give them the credit due them, by writing *e. g.* *Adiantum* Theophr. instead of *Adiantum* Linn.; *Salix* Vergil, for *Salix* Linn. That a comparatively small number of the few hundreds of plants known before Linnaeus need have their names changed because that author had prejudices just as code makers today have prejudices, need not worry us needlessly, for more changes are made

in names every time a code goes out of fashion, than would be made by a reversion to historical priority. The criticism, if any there be, against our method as such, will we are sure, come only from the superficial opinions of such as either are unacquainted with the pre-Linnaean masters, or are unable to understand their works even if they tried to read them in the original classical languages. For the opinions of such we need care very little, and for their consolation we may ask them to refrain from unreasonable criticism, because we are entitled to our point of view in matters of opinions as well as they are entitled to another opinion.

Regarding the problem of decision as to the relative merits of the ancient Greek and Latin names, we must remember that the question was largely settled by subsequent authors even before Linnaeus. Our nomenclature of biology is Latin not Greek, and only the latter when first latinized. The very fact that hardly an author ever used any but latinized Greek names or derived Greek names for plants and animals, makes the above statement almost self-evident. The publication of the old Greek and Latin names was always held on a par and when absolute synonyms existed in both languages, the Latin name was invariably accepted, and up until the time of Linnaeus the Greek names were so carefully relegated to synonymy that it was considered a grave error to apply them to any newly discovered plant, even though their very fact of synonymy was so well known that it put them in a position that they could never have been mistaken even if newly used. No one ever presumed to use the name *Drys* for any new plant; for the older botanists knew it to be but the Greek name for *Quercus*, which every one always gave precedence. There seems to have been an apparent exception in case of *Pteris* which may have been given precedence to the Latin name. Both were used and often vaguely and indiscriminately.

No one but Linnaeus would ever have dared, unless by mistake, to use *Ptelea* for any new plant unless he thought it was an elm. Yet Linnaeus not caring for the confusion he might cause knew full well it was not an *Ulmus* and, because perhaps the name never could be used at all in nomenclature, he thought himself free to use it for a new American genus. We must give him credit at least for not foreseeing that at some time, our superficial Greek and Latin students of today meeting the

word referred to in Homer, Hesiod, Theophrastus, Theocrites, or Dioscorides might suppose that our American plant of that name grew in the Orient! As a rule, however, even Linnaeus left the Grecian synonyms of accepted Latin names severely alone, though he sometimes took a well sounding doubtfully interpreted name, and applied it to a new-world plant. Even in that case there was for example no reason whatever to take the old Greek name *Dodocaltheon* and give it to a plant that already had a perfectly valid name, *Meadia*.

It is reasonable therefore to accept all the ancient plant names given before the era of printing on the same relative basis of priority as was held by the pre-Linnaean botanists generally. By accepting historical priority as our guide in nomenclature credit is given to whom it is due. No arbitrary or unreasonable principles need be applied, but only the principles of reason. This is not really a code; for a code implies some agreement, and seems to imply the arbitrary. Never until our own times has there been so much confusion of nomenclature, and never too have we been so much and frequently afflicted with new fashions of codes. There never really was any need whatever of any of them, and most botanists have begun to see that we would have made more progress had some refrained from stirring up a hornet's nest every time a new code is to be "proposed or emended?"

We hope that as a record of the plants in our locality these pages will appeal even to those who are prejudiced against historical priority, or are entirely indifferent to nomenclatorial problems. The names accepted as valid on the basis of 1753 as a "starting point" of biological science, will be given in capital letters so that the synonymy may be noted at a glance.

In regard to names of families or orders, we shall try as much as possible to accept priority as we have for genera and species. The old argument may be brought up here that families and orders have changed so much that many older family names, even pre-Linnaean ones, can not be considered in the same sense as now outlined. The family *Rosaceae* Boerhaave, may not include the same genera as now. If we reject it for this reason we may reject for a similar reason applied to genera, nearly all of Linnaeus' names. If any one now failed to attribute the name *Rosa* or *Lilium* to Linnaeus because segregates have since been made

from them, one should be rightly indignant. So applying the same principle to family names we have less difficulty in recognizing the type genus of a family for the name of the latter is usually built up from the former as type genus. In case of such families antedating 1753, as *Liliaceae*, *Rosaceae*, *Orchideae*, *Pomaceae*, (or *Pomiferae*) *Cichoraceae*, *Cucurbitaceae*, or even *Ferulaceae*, etc., there is very little difficulty for the merest tyro to guess rightly what the type genus must be. No matter how much the family may have been segregated from, we may be sure we are correct in reserving the name that contains the genera, *Rosa*, *Lilium*, *Orchis*, *Malus*, *Cichorium*, *Cucurbita*, *Ferula*, etc. are to be referred to them even though they be left as monogenotypic families.

When we consider on scanning any work, such as Bubani's *Flora Pyrenea*, Sprengel's *Genera Plantarum*, S. F. Gray's *Natural Arrangement of British Plants*, which have as their basic principle the historical priority of plant names, how many of the older classical ones still remain in our nomenclature, and that most of them were approved by Linneaus himself, we will see that the changes to be made to bring botany under the system of historical priority are comparatively very few. They would be fewer in fact in the long run than those made necessary now by the vacillating of modified codes. There will constantly be found newer names older than such we have since 1753 as a starting point. Every new manual has many new ones, the new Gray's Manual not excepted, though the authors pretend to have brought it in perfect accord to the rulings of the Vienna Code. Thus it seems that even this last of them all has not succeeded in preventing changes. The next will do no more to stop the confusion, but will add a little more perhaps by reason of one or other arbitrary ruling it may make. Codes are not what we need to clear up our difficulties. The safest and sanest system will, as thinking botanists of today admit, only come when we apply the method of reason alone, absolute historical priority.

Regarding citations of synonymy the original works have in nearly all cases been looked up. Even when the actual page is not quoted as happens in some cases, the citations were in most cases looked up in original works. It was at first thought that it would be better to quote only the author and the year of publication of any given name, thus making the list much shorter, As, however, some of the works do not ordinarily appear in the

synonymy of modern names, it was thought better to include such quotations as correctly as possible, and so it was found necessary to go over the whole nomenclatorial part of the list a second time at no inconsiderable inconvenience and loss of time.

References to other works more or less embracing in a general way our locality were made. Principal among these works are the following: Coulter, S., Cat. Flowering Plants of Ind., (1899); Higley, W. K. and Raddin, C. S., Flora of Cook Co., Ill. and Part of Lake Co. Ind., (1891); Smith, E. F. and Wheeler, C. F., Flora of Mich., (1881); Wilson, G. W., New and Little Known Members of Indiana Flora, Prov. Ind. Acad. Sc., (1905); Deam, C. C. Report of State Board of Forestry, (1911). Mr. Chas. Deam has also kindly sent me lists of plants collected in his botanizing trips over the region. Use has also been made of plants deposited in the U. S. National Herbarium and principally the collection given by Mr. Evermann, from the country about Lake Maxinkuckee.

It is impossible to give a nomenclatorial list of works consulted as it would run into the hundreds, even thousands, of volumes. A sufficient synonymy quotation in reference under each name will, however, supply this want. Whatever nomenclatorial difficulties may be suggested to us will later be discussed in footnotes under the particular plant names that demand explanation of an applied principle not yet explained.

Subkingdom PTERIDOPHYTA.

Order I. DORSIFERAE. Rivinus, (1690-1699).

Also Heucher, (1711?) ex Linn. Classes Plant, (1738). Ruppins, Fl. Jen. (1718), (1726) and (1745).

Filices Linn., l. c. p. 438, (1738); also Phil. Bot. P. 36, (1751) exclus. of *Lycopodiaceae* and *Selaginellaceae*, A. Haller, Enum. Hort. Agri., p. xii and 1 (1753), and Stirp., Ind. Helvet (1742). *Epiphyllaspermae* Haller, Fl. Helv. p. 130. (1742.) *Tergiferae* J. Faber, in Hernandez, Rev. Med. p. 757, (1651 (?) or of Caesalpinus acc. to the same (?) *Filices* R. Brown. FILICALES Britton, Manual p. 1. (1901). *Epiphyllaspermae* J. Ray Hist. I. 132, (1686) ex Haller. (1768) and do. (1769). Nomenclator. p. 154. (only in part.)

Family 1. OPHIOGLOSSACEAE Presl, Pterid. 6. (1836).

BOTRYCHIUM Swartz, Schrad. Bot. 2:8. (1808).

Botrychium virginianum (Linn.) Swartz, do. 2: 111. (1800). Very common in low and rich woods throughout our region. Nos. 517, 9342 Rum Village, S. of South Bend, (St. Joseph Co.), 9135. Ryan's Woods N. Notre Dame, also 2488 Notre Dame. Also at Hudson Lake (Laporte Co.) Mishawaka, Granger (St. Joseph), Smith, Ind. (Laporte), Belleview, (Elkhart), Munich, Mich. also St. Joseph and Benton Harbor, (Berrien Co.), San José Park, Lawton, Mich (Cass Co.) etc.

Botrychium ternatum (Thunb.) Swartz, do.

Osmunda ternata Thunb. Fl. Jap. 329, (1784).

Reported from Lake Co. in State Catalogue, also at South Haven, Mich. I have been unable to find it anywhere.

Botrychium ternatum var. **intermedium** Watson, Millers, Ind. [Babcock].

Botrychium ternatum var. **obliquum** Muhl.

Botrychium obliquum (Muhl.) Willd., Sp. Pl. 5, 53 (1810) Millers, Ind. [Hill]. Laporte Co. [Deam].

Botrychium ternatum var. **dissectum** (Spreng). Laporte Co. [Deam].

Botrychium dissectum Spreng. Anleit. 3 p. 172, (1804). Laporte Co. [Deam].

Family 2. **OSMUNDACEAE** R. Brown, Prod. Fl.

Nov. Holl. 1: 161. (1810) and (1821) p. 810.

OSMUNDA Lobelius, (1571) also do Obs. p. 474. (1576).

Osmunda Tourn. El. Bot. (1694) p. 436, also Inst. Rei Herb. (1700) p. 547. *Osmunda* Linn. Gen. Pl. p. 322 (1737), Hort. Cliff. p. 472. (1737). *OSMUNDA* Linn., Sp. Pl. p. 1063, (1753). Gen. Pl. 484, (1754.)

Osmunda regalis Linn. Sp. Pl. p. 1065. (1753).

(*Osmunda regalis* Plumier Filic, p. 35, (1703) [?])

Notre Dame, Ind. no. 895, Webster's Crossing N. of Notre Dame, 9155. Granger, Ind. Also at North Liberty, Mishawaka, etc., (St. Joseph County.) Millers (Lake Co.) Tamarack, (Porter Co.) Near Michigan City (Laporte Co). St. Joseph, Benton Harbor, Grand Beach, Niles and Bertrand, Mich. (Berrien Co.) Lawton (Cass Co.) etc., etc.

The plant sometimes has its sporangia completely infested

by a purple mold which destroys the fructification. (No. 2790.)
Stephensville, Mich., (Berrien Co.)

Osmunda cinnamomea Linn. Sp. Pl. p. 1066 (1753).

Found together with the preceding throughout our region
in every county of both states above mentioned. No. 9319. Notre
Dame, Ind.

Osmunda claytoniana Linn. Sp. Pl. p. 1066, (1753).

Osmunda interrupta Michx, Fl. Bor. Am. 2: 273, (1803).

Not quite as common as the two preceding, but found in
all the counties of the area. Notably at Mineral Springs, Ind.,
(Porter, Co.) Near Woodland, Ind., North Liberty, Lakeville
and north of Notre Dame, (St. Joseph Co.)

Family 3. **POLYPODIACEAE** R. Brown, Prodr. Fl.

Nov. Holl. 1: 145 (1810.)

ANGIOPTERIS Mitchell Diss. p. 29. (1748) and (1769), also
Adanson, Fam. des Plantes 2, 21, (1763).

ONOCLEA Linn., Sp. Pl. p. 1062, (1753); Gen. Pl. p. 484. (1754)

Angiopteris sensibilis (Linn.)

Onoclea sensibilis Linn., Sp. Pl. do.

I have found this plant throughout the region embraced by
this list. Specific mention of localities would be useless.

STRUTHIOPTERIS Cordus. De Plantis, II. b. (1561).
Op. Posth. also *Struthiopteris* Willd. Ges. Nat. Fr. Berl. 3, 160
1809) not *Struthiopteris* Haller Fl. Helv. 132 (1768) and same
(1742) in part; nor Scopoli Fl. Car. (1760) and (1772) 2nd ed.
nor Weis Pl. Crypt. Fl. Gw. 286. (1770) nor Ludwig-Boehmer
Def. Gen. Pl. as Subgenus (1760) p. 479 = *Lomaria Spicant*. Nor
Struthiopteris Bernh., Schrad. Jr. (1800), 126 (1801) = *Osmunda*.

MATTEUCIA Todaro, Syn. Pl. Acot. Vasc. Sic. 30, (1866).
Onoclea Linn., (1753) in part. *Strutiofera* Muntig. *Pterinodes*
Siegesb. Prim Fl. Pt. 19, (1736). *Filicastrum* Amm. Stirp. Ruth.
175 (1739) also Haller (1745).

Onoclea Linn., (1753) in part.

Struthiopteris Cordi. Thalius Sylva Hercyna p. 119-121
(1586).

MATTEUCIA STRUTHIOPTERIS (Linn.,) Todaro. l. c. *Onoclea*.
Struthiopteris Germanica Willd. l. c.

Struthiopteris Cordi var. γ , Haller, St. Helv. p. 149 (1742).

Onoclea Struthiopteris (Linn.) Hoffm., Deutsch. Fl. 2: 11, (1795)

Osmunda Struthiopteris Linn. Sp. Pl. p. 1066. (1753).

Near Woodland, Ind. (St. Joseph Co.). In a Tamarack bog.

CYSTOPTERIS Bernh. Schrad., Neues Jr. Bot. I. pt 2: 26 (1806).

Filix Adanson*, Familles. des Plantes 2: 20, (1763).

Cystopteris fragilis (Linn. 1762) Bernh. Schrad. Neues Jr. Bot. 1: pt. 2, 27. (1806). *Cyclopteris fragilis* S. F. Gray. Nat. Arr. Br. Pl. 2: 9 (1821).

Polypodium Filix fragile† Linn. Sp. Pl. p. 1091, (1753). *Polypodium fragile* Linn., Sp. Pl. 2nd ed. p. 1553 (1763), also 3rd ed. *Filix fragilis* Underwood, (1900). *Cystopteris Filix fragilis*. See Am. Mid. Nat. Vol. 2, No. I. (1911).

This plant is our common Brittle Fern and I have found it in all the counties of both states in our region. No. 407 Notre Dame, also 3398 (St. Joseph Co.) No. 9341 Smith, Ind. (Laporte Co.).

DENNSTAEDTIA Bernh. Schrad. Jr. (1800) 124 (1801).

Dicksonia L'Herit. Sert. Angl., 30 (1788).

Dennstaedtia punctilobula (Michx.) Moore, Ind., XCVII (1857).

Dicksonia punctilobula (Michx.) A. Gray, Man. p. 628 (1848).

Nephrodium punctilobulum Michx. Fl. Bor. Am. 2: 268 (1803).

Though I have never found this plant within the limits of the region, the fact of its having been reported from Steuben Co. makes it possible that it may yet be found.

*The name *Filix*, or translated literally "fern", was applied so generally by pre-Linnean botanists to many genera promiscuously that its use for any one is highly objectionable. It is not beyond doubt that Fuchs' use of *Filix* as a name was meant as a generic designation or simply a "kind of fern." Adanson's use therefore would be a synonym for the name used by Fuchs, and Fuchs' designation is doubtful. Hence the inappropriate name *Filix* had better be entirely rejected. See note under *Aspidium*.

†The use of the trivial name, *Filix fragilis* without the hyphen would be the correct use after *Cystopteris* or *Filix* as *Cystopteris Filix fragilis* or *Filix Filix fragilis*, for those who claim to follow the rules of the codes, but there does not seem to be much consistency of authors in this matter, For further discussion of the subject see AM. MID. NAT. vol. II. pp. 97-122.

POLYSTICHUM Roth. Röm. Mag. 2: 106 (1799); also Bernh. Schrad. Jr. (1799).

Polystichum Achrostichoides (Michx.) Schott., Gen. Fil. ad. t. 9, (1834).

THELYPTERIS ACHROSTICHOIDES (Michx.) Nwd. *Dryopteris achrostichoides* (Michx.), Kuntze, Rev. Gen. Pl. 812, (1891). *Aspidium achrostichoides* Sw. Syn. Fil. 44. (1806).

Very common in every county in the region. No. 9023 (St. Joseph Co.) near Galien, Ind. 9332 N. of Notre Dame, 2737 Pine, on Wabash R. R. (St. Joseph.) Found also at Stephensville, Grand Beach, Benton Harbor and St. Joseph, (Berrien Co.) Mich. Millers, Ind., (Lake Co.) [Higley & Raddin]. (Porter and Laporte Co.), [Deam].

LASTRAEA Presl. Tent. Pterid. p. 73 (1836), Babing. Man. Br. Bot. p. 409 (1851) etc.

Aspidium Swartz, Schrad. Jr. Bot. 2: 4, (1800).* *Thelypteris* Ruppian, Haller Fl. Jen. p. 266, (1726), also Schmidel Ic. Pl. p. 45, (1762), Schott, not *Thelypteris* V. Cordus, and other pre-Linnaean authors.† *Dryopteris* Adanson, Fam. des Plants 2: 20, (1763), not *Dryopteris* Pliny, Dioscorides, Theophrastus, Gesner, Amman, Parkinson, etc.‡

***Lastraea Clintoneana* X *spinulosa*.** (Laporte Co.) Deam.

* The name *Aspidium* of Dioscorides is found as one of the synonyms of *Alyssum* Diosc. l. 3, c. 95, and later as a synonym for *Atractylis*—*Cnicus sylvestris*.

† *Dryopteris* of Dioscorides, Pliny and Theophrastus is *Asplenium Adiantum nigrum* Linn. The use of the name for the genus in question is therefore objectionable as used by Adanson and must be relegated to synonymy on the basis of historical priority. See Fée, A. de Théocrète. p. 89. Smith, J. E., Fl. Graec. Prod. 2: 277.

‡ *Thelypteris* of the Valerius Cordus and the other pre-Linnaeans is *Pteris aquilina* Linn. and assuming this plant to be the type of the genus *Pteris*, similar reasons to those of the preceding note invalidate the name. Likewise *Filix* is to be rejected as a name both for this and any other genus of ferns as it is but a latin form of the Greek *Pteris* and was so used by Vergil and others. See Fée, A. Fl. de Verg. p. 56. According to Bauhin *Thelypteris* of Theophrastus, Pliny and Dioscorides refers to *Athyrium*. *Filix foemina* (Linn.) Roth or *Asplenium Filix foemina* (Linn.) Bernh. Regarding the name *Lnchitis* as a name for the genus there seems to be considerable doubt. See J. E. Smith Fl. Graec 2: 273, though Tournefort seems to have adopted the name, Inst. Rei Herb., 538. (1700).

Lastraea intermedia (Muhl.).

Lastraea spinulosa var. *intermedia* (Presl.).

THELYPTERIS SPINULOSA var. INTERMEDIA (Retz). *Dryopteris spinulosa* var. *intermedia* (Muhl.) Underw. Nat. Ferns. ed. 4, 116, (1893.) *Aspidium intermedium* Muhl. Willd. Sp. Pl 5: 262 (1810). *Aspidium spinulosum* var. *intermedium* D. C. Eaton, Gray's Man. p. 665, (1893). *Dryopteris intermedia* A. Gray. Man. 630, (1848).

No. 9320 Notre Dame, No. 10095 Mineral Springs (Porter Co.) Ind. Found also at Grand Beach, Mich (Berrien Co.) Stephenville. Porter Co. [Deam].

Lastraea cristata (Linn). Presl. Tent. 77 (1836).

Aspidium cristatum (Linn.) Sw. Schrad. Jr. (1800), 37 (1801).

Dryopteris cristata (Linn.) A. Gray, Man. ed. 1. 631, (1848).

Thelypteris cristata (Linn.) Nwd. Porter Co. [Deam]. Also Lake Co. by the Author (No. 9754).

Lastraea Thelypteris (Linn.) Bory, Dict. 9, 233, (1826).

Aspidium Thelypteris (Linn.), Sw. Schrad. Jr. (1800) 40, (1801).

Dryopteris Thelypteris (Linn.), A. Gray Man. Ed. 1, 630, (1848). Found commonly. Chain Lakes. (St. Joseph Co.). Porter Co. [Deam]. Clarke, Ind. (Lake Co.). [Umbach]. Found by the author at Dune Park, Ind., (Lake Co.); also Chain Lakes, (St. Joseph Co.)*

ANCHISTEA Presl., Epim. Bot. 71, (1849).

Woodwardia J. E. Smith Mem. Acad. Tor. 5: 411, (1793).

Anchistea virginica (Linn) Presl. l. c.

Woodwardia virginica (Linn.) J. E. Smith l. c. p. 412.

Blechnum virginicum Linn. Mant. 2: 307 (1771).

Tamarack swamps. Very abundant everywhere. No. 9648 Sagunay also Smith, Ind. (Laporte Co.) also W. of Woodland (St. Joseph Co.) Lakeville, Ind. Mineral Springs. Road near dunes of lake (Porter Co.) This in some of the bogs is the most

* These are the only species of *Lastraea* I have been able to record nor have I found others. Such plants as the following should be found as they are reported from nearby localities.

L. spinulosa, *L. Dryopteris* from near Chicago.

L. Goldieana found in Steuben Co., (Deam) and in central Michigan (Hicks). *L. hexagonoptera* Ann Arbor, Mich. (Clarke). *L. marginalis*, Saginaw, Mich., (Umbach). *L. noveboracensis*, Steuben Co. (Deam), and possibly *L. Bootii* is to be located.

abundant fern we have. At Sagunay the plants are so common as to encroach even upon the *Cassandra calyculata*. Millers, Ind. [Higley & Raddin].

Reported also from Lake Co. I have found it in all the counties except Elkhart where it is probably also found in places I have not seen..

TRICHOMANES Dioscorides.

Tour. El. Bot. 430, (1694). Inst. R. H. 539. (1700). Bubani Fl. Pyr. 4: 424. (1901).

*ASPLENIUM** Tour. Inst. Rei Herb. 544, (1700) El. Bot., (1694) p. 434. Dodonaeus Pempt. p. 465, (1583) etc. also Linn. Gen. Pl. p. 322, (1737), do. p. 485, (1754). Sp. Pl. p. 1078, (1753). *Asplenium* Matthioli (1554). Comment Dios. p. 414, also do. (1552) p. 547, and (1560) etc. *Cetrach*† Caesalpinus, De Plantis. p. 575., also Euricius Cordus.

Trichomanes ebeneum (Ait).

Asplenium ebeneum Ait. Hort. Kew. 3: 462, (1789).

Asplenium platyneuron (Linn.) Oakes D. C. Eaton, Ferns N. Am. 1: 24, (1879).

No. 9308 NW. of Notre Dame also 9413. Not infrequent. Found also in both counties in Michigan and Elkhart and Porter in Indiana. Millers, Ind. [Bastin]. Berry Lake, Ind. [Higley & Raddin].

Trichomanes acrostichoides (Swartz).

Asplenium acrostichoides Swartz do. p. 54. *Asplenium thelypteroides* Michx. Fl. Bor. Am. 2: 265, (1803). *Diplazium thelypteroides* Presl. Pterid. 114, (1836). Laporte Co. [Deam].

Found in Steuben Co. and may be found in our area. I have not as yet found it. Berry Lake, Ind. [Higley & Raddin].

ADIANTUM Hypocrates Eid. XIII. v. 40. etc. Theophrastus Hist. Pl. VII, 13. Nicander. Ther. V. 846. Dioscorides, Pliny, etc., etc., and nearly all pre-Linnaean writers.

Adiantum Tour. Els. Bot. p. 433, (1694). Inst. Rei. Herb. p. 543, (1700). *ADIANTUM* Linn., Syst. Nat. 1st ed. (1735).;

*The *Asplenium* of Dioscorides, Pliny and some other pre-Linnaean authors has been taken out of this genus. See Bubani l. c.

† The genus *Ceterach* is now considered as a valid separate genus distinct from *Asplenium* Linn. by some authors.

Gen. Pl. p. 322, (1737); Hort. Cliff. p. 473, (1737); also p. 485 (1754) Sp. Pl. p. 1094 (1753.)

Adiantum americanum Cornuti Plant. Canad. 7 t. 6. (1635) also Ray Hist, 148 (1686).

ADIANTUM PEDATUM Linn., Sp. Pl. p. 1095, (1753).

Common and observed in every county. No. 2714½ Chain Lakes (St. Joseph.) 2714 Stephenville, Mich. (Berrien Co.) Studebaker's Woods, South Bend, Indiana. Munich, Mich. La-porte Co. [Deam].

PTERIS Theocritus. Eid III. 14 etc. and Dioscorides IV. 187.

Filix Vergil Georg. II, 189. Pliny XX, 55? Tour. Els. Bot. 429, 4694. Inst. Rei Herb. p. 536, (1700). *Filix*, Haller, Fuchs, Matthioli, Dodonaeus Lobelius, Tabernaemontanus, J. Ray, Blackwell, etc. *Thelypteris* Theophrastus IX, 20 also Dioscorides, and Valerius Cordus, (1560). *Avia* Columella, VI. 14. *PTERIS*. Linn., Syst. Nat., (1735); Gen. Pl. p. 322, (1737). Hort. Cliff 973 (1737), and g. 484, (1754) Sp. Pl. p. 1073, (1753). *Pteridium* Scopoli, Fl. Car. p. 169 (1760), not *Pteridium* Cordus l. c. = *Lastraea* or *Trichomanes* sp.

Pteris aquilina Linn., Sp. Pl. p. 1075, (1753).

Pteris nymphaea Dioscorides l. c. (?) *Filix nymphaea* Pliny l. c. *Pteridium aquilinum* (Linn.) Kuhn. *Pterium majus* Siegesb. Fl. Pet. p. 91.

Found in many places in all the counties. No. 2754. Notre Dame. 2754 ½ Chain Lakes (St. Joseph Co.) No. 496 Notre Dame. Lake Co. [Deam].

POLYPODIUM Theophrastus Hist. pl. 1, 9, c. 13 & 22. Dioscorides, etc. and all pre-Linnaean writers.

Polypodium Tour. Els. Bot. p. 437, (1694) Inst. Hist. Rei Herb. p. 540, (1700). *Polypodium* Linn., Syst. Nat, (1735 Gen. Pl. p. 322, (1737). Hort. Cliff. 474, (1737) and p. 485, (1754). Sp. Pl. p. 1082, (1753).

Polypodium vulgare C. Bauhin Pinax. p. 359. (1622), also Tour. Els. Bot. (1694), and Hist Rei Herb. (1700) Linn. Sp. Pl. 1082 (1753 St. Joseph, Grand Beach, Michigan (Berrien Co.) Pine, Ind., (St. Joseph Co.) Mineral Springs and Tamarack (Porter Co.)

Family 4. **SALVINIACEAE** Reichenbach. Consp. 30. (1828.)*AZOLLA* Lamarck, Encycl I: 243, (1783.)**Azolla caroliniana** Willd. Sp. Pl. 5: 541. (1810).

Very abundant in fall in back waters of St. Joseph River, especially in an oxbow loop near St. Mary's Academy, Notre Dame, Ind. No. 10116.

Family 5. **EQUISETACEAE** Michx. Fl. Bor. Am. 2: 281 (1803)*EQUISETUM* Pliny. 1. 26, C. B.

Hippuris Dioscorides, of the Greek authors*, also of some other pre-Linnaean authors, Brunfels, Tragus, Amatus Lusitanus, Dodonaeus, etc. *Equisetum* Tour. Els. Bot. p. 424, (1694) also Inst. Rei Herb. p. 532, (1700). Linn. Syst. Nat, (1735); Gen Pl. p. 322, (1737); Hort. Cliff. p. 471, (1737); Sp. Pl. p. 1061, (1753).

Equisetum arvense (C. Bauhin), Linn., Sp. Pl. p. 1061. (1753).

Common everywhere and observed in every county. The plant is so abundant and crowded in places in St. Joseph County as to cover large patches preventing growth of other plants. No. 10117 Notre Dame, Ind.

Equisetum fluviatile Linn., Sp. Pl. 1062 (1753).*Equisetum limosum* Linn. do.

Common in Tamarack swamps. No. 2777. two miles W. of Woodland (St. Joseph Co.) No. 10118 Hick's Crossing near Hudson Lake, (Laporte Co.) Also in Porter Co. Near Mineral Springs and Tamarack. Near Stephenville (Berrien Co.) also at Chain Lake and (St. Joseph Co.) Lakeville near Pine, Ind. etc. etc. Reported from Lake Co. [Hill] also [Umbach].

Equisetum hiemale Linn. Sp. Pl. p. 1062 (1753). No. 10119 Notre Dame. Found throughout the region by me. Whiting, Ind. [Higley & Raddin].

Equisetum laevigatum A. Br. Engelm. A.m Jr. Sc. 46: 87, (1844) No. 2807 East Chicago, Ill. (Lake Co.). N. L. T. Nelson, also Lake Co. [Hill]. Millers, [Higley & Raddin].

**Hippuris* was used by Dioscorides, 4: 47, for *E. limosum* Linn. Moreover the *Hippuris* Dioscorides 4: 46 is *Ephedra fragilis*.

The word *Hippuris* was used by some of the Greeks for the plants called now *Equisetum arvense*. The use of the former name for a genus of phanerogams as used by Linnaeus is objectionable.

Equiestum variegatum Schleich. Cat. Pl. Herv. 27. (1807.)
Lake Co. [Hill.]

Family 6. **LYCOPODIACEAE** Michx. Fl. Bur. Am. 2: 281.
(1803.)

LYCOPODIUM Dodonaeus, Pempt. 470 (1583).

LYCOPODIUM Linn., Gen. Pl. p. 323, (1737); Hort. Cliff. 476, (1737), p. 486, (1754); Sp. Pl. p. 1100, (1753).

Lycopodium lucidulum Michx. Chesterton, Ind. [Hill]. Pine & Millers, [Higley & Raddin]. Porter Co. [Deam].

Lycopodium complanatum Linn. Sp. Pl. 1104. (1753.)

Near St. Mary's Academy, Notre Dame; collected in 1897. Plant has now disappeared entirely from this locality. (Lake Co.) State Catalogue. Millers, Berry Lake [Higley & Raddin].

Lycopodium inundatum Linn. Sp. Pl. 1102. (1753.)

Reported from Lake Co. (Hill.) Millers, Pine, Tolleston, Berry Lake, (Lake Co.). [Higley & Raddin], I have not found it.

Lycopodium obscurum Linn. Sp. Pl. p. 1102. (1753).

Lycopodium dendroideum Michx. Fl. Bor. Am. 2: 282

Reported from Lake Co. I have found sterile plants sparingly near Notre Dame, Webster's Crossing, under oak trees. no. 440. Once common, it is gradually disappearing. Also Pine & Millers, [Higley & Raddin].

Family 7. **SELAGINELLACEAE** Underwood, Nat. Ferns,
103 (1881).

SELAGINELLA Beauv. Prod. Aeth. p. 101. (1805).

Selaginella rupestris (Linn.) Spring. Martius Fl. Bras. 1: pt. 2. 118 (1840.)

Lake (Hill) N. of Notre Dame, Ind. no. 9547. Pine, Ind. [Higley & Raddin]. Rare.

Selaginella apous (Linn.) Spring do. p. 119.

Lycopodium apodum Linn., Sp. Pl. 1105, (1753).

Common in all the counties. No. 9548 Notre Dame, Ind. Lake Co. [Deam]. Pine & Clarke, Ind. [Higley & Raddin]. Colehour Ind. [Hill].

Subkingdom SPERMATOPHYTA.

Class I. GYMNOSPERMAE.

Order CONIFERAE.

Bellonius, (1533). Rivinus (1690-1699).

Linn. Phil. Bot. 30, (1751); also Haller Fl. Helv. (1752) & (1753)

Family 8 **ABIETIDEAE** S. F. Gray, Nat. Arr. 2. 223, (1821).

Pinaceae Lindley Nat. Syst. Ed. 2, 313, (1836).

PINUS Vergil. Ecl. VII, 56, and Georg. I, 141.* Pliny.

Pinus Tour. Els. Bot. p. 457, (1694). Inst. Rei Herb. p. 585, (1700). *PINUS* Linn., (in part) Syst. Nat. (1735); Gen. Pl. p. 293, (1737); Hort. Cliff. p. 450, (1737); Gen. P. p. 434, (1754); Sp. Pl. p. 1000, (1753).

Pinus divaricata (Ait.) Sudw. Bull. Club. Iub. 20: 44, (1893)

Pinus Banksiana Lamb., Pinus, 1: 7 pl. 3, (1803). *Pinus sylvestris* var *divaricata* Ait. Hort. Kew, 3: 366, (1789).

No. 10101 Mineral Springs (Porter Co.) Nos. 9454, 9455, 6043, 2791, Notre Dame, Ind. Common in the dunes at Millers, Ind. (Lake Co.) Michigan City (Laporte Co.) The plants at Notre Dame have been planted along the roadsides are mentioned only because they frequently spread by seeds spontaneously but are seldom allowed to attain any size unless growing along hedges. No plants have been noted by me as spontaneous east of the dune region of Lake Michigan. Porter and Lake Co. [Deam].

Pinus Strobus Linn. Sp. Pl. p. 1001, (1753).

STROBUS WEYMOUTHIANA Opiz, Lotos 4: 94 (1854).

Strobus Strobus (Linn.) Small FL. SE. U. S., p. 29 (1903), Genus *Strobus* Pliny?

No. 10021. Tamarack Bog, Sagunay, Ind. (Laporte Co.) Now common along Lake Michigan in Lake, Porter, Laporte and Berrien Counties. Laporte Co. [Deam]; Porter & Berry Lake, [Higley & Raddin]. Not abundant in the latter. The largest grove of natural White Pine I have seen near Michigan City. All the trees are of no great size. The most eastern report of the plant as growing outside of cultivation, or certainly not planted

**Pinus* of Vergil was *Pinus Pinea* Linn. (*Pinus hortensis* Vergil.) Πινυς of Theocritus. Πεύχη ημερος Theophrastus, and Κωνος.

by man is at Sagunay just outside of the boundary of St. Joseph Co. Though the tree has been extensively cultivated throughout the region I have found it wild nowhere except as noted above. I have been told that white pine is still to be found in a swamp several miles north of Hudson Lake.

LARIX Pliny, l. 16, c. 39, Vitruvius, Galen, St. Isidore, also Dodonaeus, Pempt. 168, (1582). Bauhin, Pinax 493, (1623) etc.

Pinus Linn. l. c. in part. *LARIX* Duhamel Traité des Arbres et Arbustes p: 331, (1775), also Adanson Fam. Pl. 2: 480, (1763) etc.

Larix americana Mich. Fl. Bor. Am. 2: 203, (1803).

No. 9566. Chain Lakes and Lydick (St. Joseph Co.) Ind. Also Sagunay and Tamarack, Ind. (Laporte Co.) Mineral Springs (Porter Co.) San José Park near Lawton, Mich., and near Paw Paw (Cass Co.) near Kalamazoo (Kalamazoo Co.). Common in Lake Co. Indiana (Dune Park.) Galien Mich (Berrien Co.) also at Lost Lake in the Kankakee Swamps, N. Liberty Ind. Lakeville, Woodland, Ind. (Along Turkey Creek Road). Pine, Ind. (St. Joseph Co.) Porter Co. [Deam]. Millers, Ind. [Higley & Raddin]. The longest tamarack swamp I have found is along the Turkey Creek Road 2 miles west of Woodland. It is rapidly being drained and the larger trees as in all the bogs are being cut for posts as they resist decay quite well. In a few years there will be no more of these trees in this locality where they were formerly so abundant. Even the small Larch bogs in the dunes of Lake Michigan or near them are rapidly being drained for cultivation, and so will disappear a remarkable flora with them comprising such interesting plants as *Drosera*, *Sarracenia*, *Cypripedium acaule*, *candidum*, and *Reginae*. *Oxycoccus macrocarpus*, *Cornus canadensis*, etc.

THUYA Homer, Theophrastus, also Pliny, l. 13, C. Bauhin Pin. 1623 etc.

Thuja Tour. Els. Bot. p. 459, (1694), also Inst. Rei Herb. p. 586, (1700). *Thuja* Linn., Syst. Nat. (1735); Gen. Pl. p. 378, (1737), do. 435, (1754). *THUYA* Hort. Cliff. p. 449, (1737), also Sp. Pl. 1002, (1735).

Thuja Theophrasti C. Bauhin, Pin. (1623) also Tour, l. c. Els. Bot. (1694) and p. 587 Inst. R. H. (1700).

THUYA OCCIDENTALIS Linn. Sp. Pl. p. 1002. (1753).

The only locality I know for this plant is in the dunes of N. Mineral Springs (Porter Co.) The trees are growing in a tamarack bog and are rapidly disappearing as are also the tamaracks themselves. Nos. 938, and 10102. Pine, Ind. [Hill]. Berry Lake, Ind. [Higley & Raddin]. Lake Co. [Deam].

Family 9. **CYPRESSIDEAE** S. F. Gray. Nat. Arr. (1820).

JUNIPERUS Vergil Ecl. VII, 53 & Ecl X.* 76 also Pliny?

Arkeuthos Theophrastus Hist. Pl. III. 4, also Diosc. I, 104. Theocritus Eid. I. V. 133 and Eid V. V. 97†. *Juniperus* Tour. Els. Bot. p. 461, (1694). Inst. Rei Herb. p. 558, (1700). *JUNIPERUS* Linn. Syst. Nat., (1735); Gen. Pl. p. 311, (1737); do 461, (1754). Hort. Cliff. p. 464. (1737).

Juniperus vulgaris Tragus, Hist. 1074 also Clusius (1601).

JUNIPERUS COMMUNIS Linn. Sp. Pl. 1040. (1753).

(St. Joseph Co.) along the St. Joseph River, and escaped near Graveyard (Cedar Grove Cemetary.); also at St. Joseph, Mich. (Berrien Co.) along the bluffs near the Lake. No. 3339 St. Joseph, Mich. Also nos. 9104 and 2717, Stephenville. Pine, Ind. [Higley & Raddin]. Cultivated or perhaps escaped?

Juniperus depressa Raf. Med. Fl. 12 (1830) (1817? incitaton).

Juniperus vulgaris var. *depressa* (Pursh).

Juniperus prostrata L. c. (?)

Juniperus communis var. *depressa* Pursh, F., Fl. Am. Sept. (1816) p. 646. *Juniperus communis* var. *canadensis* Loud. Willd. Sp. Pl. 4: 854 (1806).

Juniperus communis var. *alpina* Gaud. Fl. Helvet. *Juniperus alpina* S. F. Gray. Nat. Arr. p. 226, (1821), 6: 301, (1830).

Juniperus sibirica Burgsd. Anleit. n. 272, (1787). *Juniperus communis* var. *montana* Ait. Hist. Kew, p. 414. (1789) acc to Willd. l. c. *Juniperus communis* var. γ . Linn. Sp. Pl. 1040, (1753). *Juniperus communis* var. γ . *J. alpina* Smith Brit. Fl. 3: 1086, (1805). *Juniperus alpina* S. F. Gray Nat. Arr. p. 226, (1821).

Juniperus alpina Clusius, Hist. Pl. Rar. p. 38 (1601)! J. Bauhin Hist. p. 1650, also Ray, J. Syn. 444, (1724), etc., etc., acc. to some authors but the mid and plant really different.

*See Fée. Fl. Verg. p. 73, also Fl. Theocr. p. 14.

†See Fée. Fl. Theocr. p. 14.

St. Joseph Co. along the high sandy banks N. of Notre Dame Found also in similar habitat across the boundary in Berrien Co., Michigan. The patches are several meters in diameter and the branches closely prostrate, the smaller rising a few decimeters. Not abundant. Given in State Report also from Lake Co. and Porter Co. also Laporte [Deam].

Juniperus virginiana Linn., Sp. Pl. 1039. (1753).

Very abundant mixed with oak and hickory in woods. in sandy soil north of Notre Dame, Ind. especially in close proximity to the river or lake. Does not grow to any size in our region. St. Joseph and Berrien Counties. also Cass Co. Mich.; Laporte Co. Nos. 485 and 3342. St. Joseph, Mich. Millers and Whiting. [Higley and Raddin]. The tree commonly found in the East, Virginia, Maryland, etc., is a cultivated variety of *J. virginiana* brought over from Europe. It is found also in our region occasionally.

Family 10. **TAXIDEAE**. S. F. Gray Nat. Arr. 2: 226. (1820)

Taxaceae Lindley Nat. Syst. Ed. 2. 316, (1836).

TAXUS Vergil. Ecl IX. 30. Georg II., 113 & II. 257, Georg III. 448, & IV., 47. Also Dioscorides and Pliny.

Milos Theophrastus III. 4. *Taxus* Tour. Els. Bot. p. 462, (1694); Inst. Rei Herb. p. 589, (1700). *TAXUS* Linn. Syst. Nat. (1735) also Gen. Pl. p. 312, (1737), do. p. 462, (1754). Hort. Cliff. 464, (1737); Sp. Pl. p. 1040, (1753).

Taxus minor (Michx) Britton Mem. Torr. Club. 5: 19. (1893).

Taxus baccata var. *m nor* Michx. Fl. Bor. Am. 2: 245, (1803). *Taxus canadensis* Willd. Sp. Pl. 4: 856, (1806).

Found south of Stephenville (Berrien Co.) Mich., no. 2716. The plant was found also at St. Joseph, Mich. Always in rather shady woods very close to the Lake. Although I have travelled extensively over the dune region from Millers, Ind. to New Buffalo, Mich., I have never found the plant anywhere within the limits of the sand hills of Indiana, nor have I found quite the same kind of habitat as the plant favors higher north, that is rather moist sandy woods on high bluffs very near the lake.

(To be continued.)